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10/509,882	10/04/2004	Akira Yamauchi	0095/019001	9768

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WASHINGTON, DC 20006

EXAMINER

HESS, MICHAEL THOMAS

ART UNIT	PAPER NUMBER
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3709

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary

Application No.

10/509,882

Applicant(s)

YAMAUCHI ET AL.

Examiner

Michael T. Hess

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 3-7, 15-25, 28-32 and 40-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed. .
- 6) ☒ Claim(s) 1, 2, 8-10, 13, 14, 26, 27, 33-35, 38 and 39 is/are rejected.
- 7) ☒ Claim(s) 11, 12, 36 and 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/04/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I and the Species as depicted in Figs. 1 and 7 in the reply filed on February 7, 2007 is acknowledged. Claims 1, 2, 8-14, 26, 27 and 33-39 read on Group I and the Species depicted in Figs. 1 and 7.
2. Claims 3-7, 15-25, 28-32 and 40-50 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group and Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on February 7, 2007.
3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

4. The abstract of the disclosure is objected to because it contains legal language such as "recognition means" on lines 4 and 6. Legal phraseology such as "means" and "said" should be avoided. Correction is required. See MPEP § 608.01(b).
5. The disclosure is objected to because of the following informalities: the word "the" should be inserted between the words "of respective" on page 4, lines 23-24 of the specification; the word "a" on page 5, line 23 between "recognize" and "accurate" should

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be "an"; the phrase "much taken" on page 6, line 17 is grammatically incorrect; the word "Sumear" on page 6, lines 18, 20, 21, 22; and page 9, line 1 should be "smear"; the word "to" should be inserted between "phenomenon" and "an" on page 7, line 21; and the word "an" between the words "between" and "movement" on page 9, lines 4-5 should be "a."

Appropriate correction is required.

Claim Objections

6. Claims 2, 9, 10, 11, 12, 27, 34, 35, 36 and 37 are objected to because of the following informalities: in claims 2, 9, 27 and 34 the term "both objects" lacks antecedent basis; in claims 2 and 27 the term "positioning recognition marks" lacks antecedent basis; in claims 9 and 34 the term "recognition marks" lacks antecedent basis; and in claims 10, 11, 36 and 37 the phrase "reached to" is not grammatically correct. Claims 10-12 and 35-37 are objected to for depending from a claim that is objected to.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim 1, 8, 26 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,762,848 to Hayata et al. (Hayata).

In Reference to Claim 1

An alignment method for positioning objects to be bonded to each other by reading a positioning recognition mark provided on at least one object by movable recognition means, said alignment method comprising the steps of:

reading said recognition mark (Ref. # 30) during movement of said recognition means before its complete stop (see Col. 9, Lines 51-55, stating that the reference member is imaged during approach); and

identifying an absolute position of said recognition mark by correcting a mark recognition position having been read by said recognition means (see Col. 5, Lines 30-32), based on a position feedback signal of said recognition means sent during movement of said recognition means (see Col. 5, Lines 28-30).

In Reference to Claim 8

The alignment method according to claim 1, wherein said reading is carried out by correcting in soft an aberration of a lens of said movable recognition means (Col. 4, Lines 51-53, "reference pattern").

In Reference to Claim 26

A mounting method for mounting one object onto the other object to be bonded to each other after positioning both objects to each other by using an alignment method, said alignment method positioning both objects to each other by reading a positioning

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recognition mark provided on at least one object by movable recognition means, said alignment method comprising the steps of;

reading said recognition mark (Ref. # 30) during movement of said recognition means before its complete stop (see Col. 9, Lines 51-55, stating that the reference member is imaged during approach); and

identifying an absolute position of said recognition mark by correcting a mark recognition position having been read by said recognition means (see Col. 5, Lines 30-32), based on a position feedback signal of said recognition means sent during movement of said recognition means (see Col. 5, Lines 28-30).

In Reference to Claim 33

The mounting method according to claim 26, wherein said reading is carried out by correcting in soft an aberration of a lens of said movable recognition means (Col. 4, Lines 51-53, "reference pattern").

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 9, 10, 27, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,762,848 to Hayata (Hayata) in view of JP 2000-279454 to Arai et al. For expedient reference, US Pre-Grant Publication #

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2004/0026006 A1 to Arai et al. (Arai) is considered an English language equivalent and will be referred to from heretofore. See MPEP 901.05(III).

In Reference to Claim 2 and 27

Hayata teaches:

the alignment method according to claim 1 (see 35 USC § 102 rejection above).

However, Hayata does not teach:

wherein a two-sight recognition means having sights in directions toward both objects is used as said movable recognition means, respective positioning recognition marks provided on both objects are simultaneously read synchronously as to respective sights during movement of said recognition means before its complete stop and absolute positions of respective recognition marks are identified by correcting respective mark recognition positions having been read by said recognition means, based on position feedback signals of said recognition means sent during movement of said recognition means.

Arai teaches:

wherein a two-sight recognition means (see Ref. #s 3 and 4) having sights in directions toward both objects (see Ref. #s 7 and 8) is used as said movable recognition means, respective positioning recognition marks (ref. #s 5 and 6) provided on both objects are simultaneously read synchronously as to respective sights (§ 0042, "recognized concurrently by both recognition means") during movement of said recognition means before its complete stop and absolute

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positions of respective recognition marks are identified by correcting respective mark recognition positions having been read by said recognition means, based on position feedback signals of said recognition means sent during movement of said recognition means in order to have a high-accuracy calibration (¶ 0008, lines 6-8).

It would have been obvious to one having ordinary skill in the art to have substituted the two-sight recognition means that reads recognition marks simultaneously and synchronously of Arai in the alignment method of Hayata in order to have a high-accuracy calibration as explicitly taught by Yoshiyuki.

In Reference to Claim 9 and 34

Hayata teaches:

the alignment method according to claim 1 (see 356 USC § 102 rejection above).

However, Hayata fails to teach:

wherein, when recognition marks of both objects are provided at positions impossible to read simultaneously, a recognition mark provided on one object is moved together with the object to a position at which the recognition mark can be read simultaneously with a recognition mark provided on the other object, and after both recognition marks are simultaneously read synchronously, an absolute position of said moved recognition mark is identified by correction in consideration of an amount of said movement.

Arai teaches:

wherein, when recognition marks of both objects are provided at positions impossible to read simultaneously, a recognition mark provided on one object is moved together with the object to a position at which the recognition mark can be read simultaneously with a recognition mark provided on the other object (§ 0040, "stage 1 can be positioned at a position for carrying out a calibration"), and after both recognition marks are simultaneously read synchronously (§ 0042), an absolute position of said moved recognition mark is identified by correction in consideration of an amount of said movement in order to have a high-accuracy calibration.

In Reference to Claim 10 and 35

Hayata fails to teach:

when said one object is moved to said position possible to be read simultaneously, said one object is reached to a recognition position prior to said movable recognition means.

However, Arai teaches:

when said one object is moved to said position possible to be read simultaneously, said one object is reached to a recognition position prior to said movable recognition means (§§ 40-42, stating that the stage is first positioned and then the recognition marks are read).

11. Claims 13, 14, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,762,848 to Hayata (Hayata) in view of U.S. Patent No. 7,176,967 to Dykaar et al. (Dykaar).

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In Reference to Claim 13 and 38.

Hayata teaches:

the alignment method according to claim 1 (see 35 USC § 102 rejection of claim 1 above; see Col. 4, Lines 22-24 for the use of a charge coupled device (CCD) as the recognition means)

However, Hyata fails to teach:

when said movable recognition means reads said positioning recognition mark provided on said object, an exposure time is controlled by an electronic shutter.

Dykaar teaches:

when said movable recognition means reads said positioning recognition mark provided on said object, an exposure time is controlled by an electronic shutter (Col. 1, Lines 55-57, teaching that if a CCD is used, an electronic shutter should be used to prevent the smear effect) in order to prevent smear effects.

It would have been obvious to one having ordinary skill in the art to have included the electronic shutter of Dykaar in the alignment method of Hayata in order to prevent smear effects (Col. 1, Lines 55-57) as explicitly taught by Dykaar.

In Reference to Claim 14 and 39

The alignment method according to claim 13 (see rejection of Claims 13 under 35 USC § 103 above)

Hayata teaches:

Wherein a stroboscopic emission is carried out synchronously with said exposure time due to said electronic shutter (Col. 8, Lines 55-56).

Allowable Subject Matter

12. Claims 11, 12, 36 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

In Reference to Claim 11

The prior art of record neither anticipates nor renders obvious the limitations of claim 11, including when one object is moved to said position possible to be read simultaneously, said one object is reached to a recognition position simultaneously with said movable recognition camera.

In Reference to Claim 12

The prior art of record neither anticipates nor renders obvious the limitations of claim 12, including when said one object is moved to said position possible to be read simultaneously, an absolute position of said recognition mark of said one object is identified before complete stop of a table for moving said one object, based on a position feedback signal of said table.

In Reference to Claim 36

The prior art of record neither anticipates nor renders obvious the limitations of claim 36, including when one object is moved to said position possible to be read simultaneously, said one object is reached to a recognition position simultaneously with said movable recognition camera.

In Reference to Claim 37

The prior art of record neither anticipates nor renders obvious the limitations of claim 12; including when said one object is moved to said position possible to be read simultaneously, an absolute position of said recognition mark of said one object is identified before complete stop of a table for moving said one object, based on a position feedback signal of said table.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Pre-Grant Publication 2002/0138974 to Suhara et al. because it discloses two-sight recognition means with a shutter; U.S. Patent No. 6,892,447 to Yamauchi et al. because it discloses a method of aligning and mounting with a two-sight recognition means; U.S. Patent No. 4,980,971 to Bartschat et al. because it shows recording recognition marks while the video camera is moving; and U.S. Patent No. 5,177,864 to Oyama because it discloses the recording of recognition marks during movement of the video camera.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael T. Hess whose telephone number is 571-270-1994. The examiner can normally be reached on 6:30 AM - 5:00 PM, Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Bomberg can be reached on 571-272-4922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MTH



THAO X. LE
PRIMARY PATENT EXAMINER